



Full length article

## The international transmission of risk: Causal relations among developed and emerging countries' term premia<sup>☆</sup>



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### ABSTRACT

We study the effect of shocks to the United States government bonds term premium on Latin American government bonds term premia. For doing so, we compute dynamic multipliers. Our main findings indicate that Latin American countries' term premia respond permanently to changes in United States term premium. However, impulse-response functions vary depending on the country and particular time-length for which premia are computed. Responses are larger for Brazil and Colombia. Mexico exhibits the lowest responses for the four economies in our study. We discuss some political economy implications of our main findings.

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## 1. Introduction

There is ample concern about the effects that the normalization of monetary policy by the Federal Reserve (FED) may produce in the United States and abroad. Many market analysts have expressed concern that Treasury yields, especially those corresponding to the medium and long terms, might rise significantly once the FED begins to raise the federal funds rate. Additionally, the end of quantitative easing (QE), a program through which the Fed purchased large quantities of long-term securities, including Treasuries, Agency bonds, and Agency Mortgage Backed Securities, might also lead to the upward correction of long-term rates of these and many other assets, as the FED may begin to sell the long-term securities that it purchased during the crisis.

The question of how to respond to long-term interest rate increases is of major importance to central bankers worldwide. However, the answer to that question is not trivial and depends on the source of that behavior as stated in [Bernanke \(2006\)](#).

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A change in long term interest rates can be decomposed into the change in expected short-term rates and a term premium. Theoretically the term premium can be negative. However, in practice it is normally positive reflecting the fact that holders of longer term assets need to be compensated for the risk of facing future unexpected interest rate increases.

On the one hand, increases in long-term interest rates that obey only to the expectation of higher future short-term interest rates may reflect that investors are expecting better economic performance in the future, reflected in higher output growth and inflation. In that case, they may be expecting the Fed to raise the overnight interest rate in response to higher inflationary pressures. On the other hand, higher long-term interest rates reflecting increases in the term premium may show investors might be expecting quite the opposite scenario. If spending depends on long-term interest rates, factors augmenting the spread between long and short-term rates will depress aggregate demand. Thus, when the term premium increases, a lower short-term rate is required to obtain the long-term rate consistent with maximum sustainable employment and stable prices. Consistently, a higher term premium may also reflect financial stability concerns such as fears about the solvency of debtors in the future.

Hence, identifying the source of changes in long-term interest rates is of major concern for central bankers, as depending on whether it is due to changes in expected future short-term rates or in the term premium it will call for opposite policy actions.

The fears about the effect of the ending of QE policies on interest rates and economic activity are shared both by developed and emerging market economies. There is significant evidence that QE policies have affected long-term interest rates in developed economies (see, for instance, [Gagnon et al., 2010](#); [Swanson, 2010](#); [Krishnamurthy and Vissing-Jorgensen, 2011](#)). Some recent papers have shown that QE policies have also affected the behavior of capital inflows, asset prices and long-term interest rates in emerging economies as well (e.g., [Cho and Rhee, 2013](#); [Fic, 2013](#); [Lim et al., 2014](#)). Hence, there is a generalized concern about the world-wide effects of monetary policy normalization.

In a recent Global Financial Stability Report, the IMF studies the implications of exit scenarios for longer-term interest rates, focusing in the world's major economies (United States, the United Kingdom, Canada, Germany and Japan. See [IMF, 2014](#)). The quantitative exercises that try to measure the effects on possible scenarios are based in studying changes in 10-year government bond yields. Although this study mentions some external risks and transition challenges faced by emerging market economies, a rigorous study on the behavior of long-term interest rates, the term premium and its relation to the term premium of developed economies is required for emerging market economies<sup>1</sup>.

Latin American countries were important recipients of international capital flows associated with QE programs in developed economies (see [De Paula et al., 2013](#); [Ahmed and Zlate, 2014](#)). And these surges in capital flows generated important effects in asset prices (especially housing), debt and credit growth ([Moreno, 2012](#); [Ocampo and Erten, 2014](#)). A major concern of policy makers in countries belonging to this region consists in anticipating the effects of the QE program's termination on long-term interest rates, capital flows and asset prices.

In this paper we partially fill that gap by estimating government bonds' term premia for four major Latin American countries (Brazil, Colombia, Mexico and Peru), and their interrelation with the United States Treasury's term premium. We use monthly information on government bond yields comprising the period March 2007–December 2014 for the five countries considered in this study, and compute the term premium for 1, 2, 5 and 10-year government bonds taking the one-month interest rate for the short-term rate. Our focal interest relies in estimating the effect that possible changes in the United States term premium may have on the term premium of Latin American government bonds.

Specifically, after estimating term premia for our set of countries we test for the presence of instantaneous and Granger-type causality between the term premium of each Latin American country and the term premium of the United States. After confirming that causality runs unidirectionally from the United States to each other country's term premium, we compute impulse-response functions representing the effects of shocks to the United States term premium on each Latin American country's term premium. In these estimations we control for innovational and additive outliers.

Our main findings indicate that Latin American countries' term premia respond permanently to changes in United States term premium. However, impulse-response functions vary depending on the country and particular time-length for which premia are computed. Generally speaking, the response is larger for 5 and 10-year term premia. Additionally, responses are larger for Brazil and Colombia. Paradoxically, Mexico exhibits the lowest responses for the four economies in our study. This fact, however, has an intuitive explanation. According to a recent study on the influence of tapering on emerging market economies ([Mishra et al., 2014](#)) Mexico is a country with deeper financial markets than the rest of Latin America and as a consequence it is less affected by international financial shocks. For instance, it has been less affected during the bouts of volatility in 2013 and early 2014.

These results have interesting policy implications. An eventual increase in the federal funds rate, together with the tapering, may lead to increases in the 10-year term premium of United States government bonds. This increase may have a considerable positive impact in long-term bonds' term premia in Latin American economies, especially in Brazil and Colombia. Higher term premia in Latin American economies might raise financial stability concerns about countries in the region and might lead to higher costs of funding for governments and firms. These higher financing costs may in turn lead to undesirable negative impacts on economic growth. These possible scenarios call for potential policy actions. Important

<sup>1</sup> See, for instance, [Ojeda-Joya and Gomez-Gonzalez \(2014\)](#) and [Guarín et al. \(2014\)](#).

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